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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,699	01/08/2002	Thad Heckman	6210-000005	5455
7590	10/05/2004		EXAMINER	
Bryan K. Wheelock Harness, Dickey & Pierce, P.L.C. Suite 400 7700 Bonhomme St. Louis, MI 63105			NGUYEN, SANG H	
			ART UNIT	PAPER NUMBER
			2877	
DATE MAILED: 10/05/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/041,699	HECKMAN, THAD
	Examiner sang nguyen	Art Unit 2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 07 July 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 5-23 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 13-18 is/are allowed.  
 6) Claim(s) 5-12 and 19-23 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Response to Amendment***

The present Office action is made in response to amendment filed on 07/07/04. It is noted that the present application contains claims 5-23 and claims 1-4 have been canceled by Amendment filed on 07/07/04.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 5-7 and 20-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoadley (U.S. Patent No. 4,089,608).

Regarding claims 5 and 20; Hoadley discloses apparatus and method for depicting contour lines on the surface of a model, comprising:

- a generally horizontal work surface is horizontal beam member (30 of figure 1) for supporting a model (16 of figure 1) on a circular table (13 of figure 1),
- at least one vertical sidewall considered to be a long upright tube (40 of figure 1) at least partially surrounding the horizontal work surface (30 of figure 1 and col.7 lines2-6) of the supported model (16 of figure 1),
- a reflector considered to be a three side prism (50 of figure 1) having a mirror back surface (55 of figure 1) on at least a portion of the interior sidewall (40 of figure 1), and

• at least one laser source (43 of figure 1) for projecting a fan shape beam considered to be a sheet of light beam (57 of figure 1 or 123 of figure 9) across the horizontal work surface (30, 13 of figure 1) of the supporting model (16 of figures 1 and 9) to the reflector to project contour lines (17 of figures 1 and 9) on at least some surfaces of a model (16 of figure 4) on the horizontal work surface (13, 30 of figure 1) that do not directly face the laser source (43 of figure 1; and col.3 line 23 to col.4 line 19 and col.6 lines 33-68; and claim 1). See figures 1-16.

Regarding claims 6 and 21; Hoadley discloses a plurality of laser sources (43, 28 of figure 1) positioned at different heights of the model (16 of figures 1 and 4) on the horizontal work surface (30 of figure 1).

Regarding claims 7 and 22; Hoadley teaches that the fan shaped beams (123 of figure 9 and/or 157 of figure 11) of each the laser sources (41 of figure 1; and figure 11 and col.9 lines 36-38) and are equally vertically spaced (figure 9 and col.7 lines 2-6).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 8 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoadley (U.S. Patent No. 4,089,608) in view of Pipitone et al (U.S. Patent No. 5,838,428).**

**Regarding claims 8 and 23;** Hoadley and Forbes disclose all of features in claimed invention except for the color of adjacent fan shaped beams are different. However, Pipitone et al teaches that it is known in the art to provide the color of adjacent fan shaped beams are different (figure 1) on the object (2 of figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify apparatus and method for depicting contour lines on the surface of a model of Hoadley with the color of adjacent fan shaped beams are different as taught Pipitone et al for the purpose of projecting color of light beams on the object in different positions.

**Claims 9, 11-12, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoadley (U.S. Patent no. 4,089,608) in view of Forbes (U.S. Patent No. 4,465,937).**

**Regarding claims 9, 12, and 19;** Hoadley discloses apparatus and method for depicting contour lines on the surface of a model, comprising:

- a generally horizontal work surface is horizontal beam member (30 of figure 1) for supporting a model (16 of figure 1) on a circular table (13 of figure 1),
- at least one vertical sidewall considered to be a long upright tube (40 of figure 1) at least partially surrounding the horizontal work surface (30 of figure 1 and col.7 lines2-6) of the supported model (16 of figure 1),
- a reflector considered to be a three side prism (50 of figure 1) having a mirror

back surface (55 of figure 1) on at least a portion of the interior sidewall (40 of figure 1), and

- at least one laser source (43 of figure 1) for projecting a fan shape beam considered to be a sheet of light beam (57 of figure 1 or 123 of figure 9) across the horizontal work surface (30, 13 of figure 1) of the supporting model (16 of figures 1 and 9) to the reflector (45, 50 of figure 1) to project contour lines (17 of figures 1 and 9) on at least some surfaces of a model (16 of figure 4) on the horizontal work surface (13, 30 of figure 1) that do not directly face the laser source (43 of figure 1; and col.3 line 23 to col.4 line19 and col.6 lines 33-68; and claim 1), wherein the laser source (43 of figure 1) for projecting the light beam with different levels on the contour lines on the model (16 of figure 4). See figures 1-16.

Hoadley discloses all of the features of claimed invention except for means for projecting a plurality of planes of the laser light across the horizontal work surface which contour lines on the model on the work surface, wherein the means for generating a plurality of planes light comprises at least one laser source and reflectors on at least a portion of the vertical sidewall. However, Forbes teaches that it is known in the art to provide means for (14, 16 of figure 1) projecting a plurality of planes (W of figure 1) of the laser light (L of figure 1) across the horizontal work surface (122 of figure2) for supporting a object model (12 of figure 2) which contour lines on the model on the work surface, wherein the means for generating a plurality of planes light (14, 16 of figure 1) comprises at least one laser source (14 of figure 1) and reflectors (16, 18 of figure 1 or

16', 18' of figure 2) on at least a portion of the vertical sidewall (130 of figure 2). See figures 1-3.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify apparatus and method for depicting contour lines on the surface of a model of Hoadley with means for projecting a plurality of planes of the laser light across the horizontal work surface which contour lines on the model on the work surface, wherein the means for generating a plurality of planes light comprises at least one laser source and reflectors on at least a portion of the vertical sidewall as taught by Forbes for the purpose of optically scanning the object having both a peripheral surface dimensions and a longitudinal dimensions with high speed (col.1 lines 30-42).

Regarding claim 11; Hoadley discloses all of features of claimed invention except for the planes of laser light are equally spaced. Forbes teaches that it is known in the art to provide the planes of laser light are equally spaced (figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify apparatus and method for depicting contour lines on the surface of a model of Hoadley with the planes of laser light are equally spaced as taught by Forbes for the purpose scanning accuracy entire the object.

**Claim 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoadley in view of Forbes as applied to claim 9 above, and further in view of Pipitone et al (U.S. Patent No. 5,838,428).**

Regarding claim 10; Hoadley and Forbes disclose all of features in claimed invention except for the color of adjacent fan shaped beams are different. However, Pipitone et al teaches that it is known in the art to provide the color of adjacent fan shaped beams are different (figure 1) on the object (2 of figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify apparatus and method for depicting contour lines on the surface of a model of Hoadley with the color of adjacent fan shaped beams are different as taught Pipitone et al for the purpose of projecting color of light beams on the object in different positions.

### ***Response to Arguments***

Applicant's arguments filed 07/07/04 have been fully considered but they are not persuasive. Applicant argued, in pages 5-, that Hoadley does not teach or suggest "at least one laser source for projecting a fan shape beam across the horizontal work surface to the reflector" in independent claims 1 and 20.

This argument is not persuasive. Applicant does not show any difference the laser source device of Applicant's invention for projecting a fan shaped beam across the horizontal work surface to the reflector disclosed and laser source as disclosed in Hoadley reference for generating a sheet light beam across the horizontal work surface to the reflector (43, 45, 50 of figure 1), since all the features recited the laser source device in the Applicant's invention and the laser device of Hoadley reference are the same the results for generating light beams to contour lines of the object. Even if the laser source device of the references is different the Applicant's laser source device,

then it is considered in inherent as indicated in the previous Office action. Further, the remark argues that Hoadley does teach or suggest "at least one laser source for projecting a fan shape beam across the horizontal work surface to the reflector". Hoadley teaches at least one laser source (43 of figure 1) for projecting a fan shape beam considered to be a sheet of light beam (57 of figure 1 or 123 of figure 9) across the horizontal work surface (30, 13 of figure 1) of the supporting model (16 of figures 1 and 9) to the reflector to project contour lines (17 of figures 1 and 9) on at least some surfaces of a model (16 of figure 4) on the horizontal work surface (13, 30 of figure 1) that do not directly face the laser source (43 of figure 1; and col.3 line 23 to col.4 line 19 and col.6 lines 33-68; and claim 1).

### ***Allowable Subject Matter***

Claims 13-18 are allowed.

As to independent claim 13 is allowable over the prior art for at least the reason that the prior art of record, taken alone or in combination, fails to disclose or render obvious apparatus for depicting contour lines on the surface of a model comprising all the specific elements with the specific combination including of at least one laser source in one of the at least one other space of the apparatus adapted to project a generally fan shaped laser beam through the at least one window in the interior wall and across the workspace in combination with the rest of the limitation of claim 13.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Nguyen whose telephone number is (571) 272-2425. The examiner can normally be reached on 9:30 am to 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, JR. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SN

Sang Nguyen/SN

September 27, 2004

  
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